

Application Number 10/565,537
Amendment dated August 20, 2007
Responsive to Office Action mailed May 18, 2007

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REMARKS

This Amendment is responsive to the Office Action dated May 18, 2007. Applicants have canceled claims 1-17 and presented new claims 18-30. Claims 18-30 are now pending.

New claims 18-30 are commensurate in scope to original claims 1-7. Claims 18-30 have been drafted to address the various formal issues in original claims 1-7, which were identified by the Examiner. Accordingly, the changes to claims 18-30 relative to original claims 1-7 are generally unrelated to patentability.

Claims 18-30 have been drafted to address the Examiner's indefiniteness rejections of claims 1-7 under 35 U.S.C. 112, second paragraph. Applicants submit that new claims 18-30 fully comply with 35 U.S.C. 112, second paragraph. The new claims omit the parenthesized numbers. The new claims also more clearly focus on the method, and do not claim both an apparatus and the method steps of using the apparatus.

In addition, the phrase "web material," which the Examiner stated was unclear, has been replaced with the phrase "sheet-shaped perforated support." This change finds support in Applicants' specification at page 4, last paragraph, and addresses the Examiner's concerns.

The phrases "in particular," "if present" and "e.g." have also been removed from the claims to address the Examiner's concerns. In addition, the other clarity and antecedent basis problems identified by the Examiner have been addressed in the new claims. In some cases, Applicants have presented several dependent claims to cover the alternatives recited in particular claims of the original claims. All pending claims now comply with 35 U.S.C. 112, second paragraph.

In the Office Action, the Examiner rejected claims 1-6 under 35 U.S.C. 102(b) as being anticipated by Davies (US 4,693,983), and rejected claims 1-7 under 35 U.S.C. 103(a) as being unpatentable over Davies. In addition, the Examiner rejected claims 1 and 4-5 under 35 U.S.C. 102(b) as being anticipated by Halling (WO 90/02170).

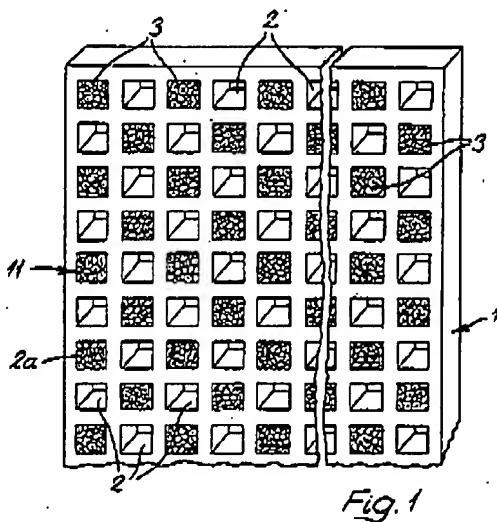
Applicants respectfully traverse the rejections to the extent such rejections may be considered applicable to the new claims. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested any rational reason to arrive at the claimed invention.

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Independent claim 18 recites a method for cultivating eukaryotic microorganisms or blue algae. The method comprises applying the eukaryotic microorganisms or blue algae to a first major surface of a sheet-shaped perforated support, wherein the sheet-shaped perforated support is essentially impermeable to the eukaryotic microorganisms or blue algae and wherein the eukaryotic microorganisms or blue algae remain immobilized on the first major surface and are adapted to be removed, supplying an aqueous solution to a second major surface of the sheet-shaped perforated support, wherein the aqueous solution flows along the second major surface of the sheet-shaped perforated support and wherein a portion of the aqueous solution flowing along the second major surface of the sheet-shaped perforated substrate is essentially transported by capillary forces from the second major surface to the first major surface through the sheet-shaped perforated support, and growing the eukaryotic microorganisms or blue algae on the first major surface of the sheet-shaped perforated support.

Davies and Halling both fail to disclose or suggest any method for cultivating eukaryotic microorganisms or blue algae that uses a sheet-shaped perforated support. For this reason, the pending claims are both novel and non-obvious over Davies and Halling.

Davies cultivates biological material within channels of a support matrix, e.g., as shown in FIG. 1 reproduced below.



Nothing in Davies suggests the use of a sheet-shaped perforated support essentially impermeable to the eukaryotic microorganisms or blue algae. Furthermore, nothing in Davies suggests

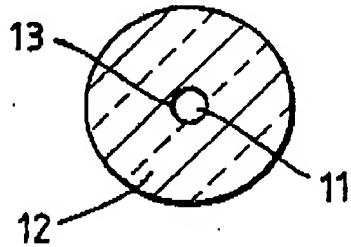
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applying the eukaryotic microorganisms or blue algae to a first major surface of a sheet-shaped perforated support. In addition, nothing in Davies suggests supplying an aqueous solution to a second major surface of the sheet-shaped perforated support, wherein the aqueous solution flows along the second major surface of the sheet-shaped perforated support and wherein a portion of the aqueous solution flowing along the second major surface of the sheet-shaped perforated substrate is essentially transported by capillary forces from the second major surface to the first major surface through the sheet-shaped perforated support.

Basically, Davies fails to disclose or suggest every aspect of new claim 18. Accordingly, the anticipation and obviousness rejections based on Davies should be withdrawn.

Halling also fails to disclose or suggest a method for eukaryotic microorganisms or blue algae that uses a sheet-shaped perforated support. Instead, Halling discloses a bioreactor that has an inner flow channel surrounded by a support matrix. FIG. 2 of Halling is reproduced below, and clearly illustrates the tubular nature of the Halling device. As can be seen from FIG. 2, the tubular device of Halling is not anything like a sheet-shaped perforated support, as required by Applicants' claims.

Fig. 2.



In the device of Halling, a microporous membrane surrounds the inner surface of flow channel 10 (the tube side). Aerobic microbial cells are immobilized between the pores of membrane 13 on the outside of membrane 13 (the "shell side"). Clearly, Halling does not use a sheet-shaped perforated support essentially impermeable to eukaryotic microorganisms or blue algae.

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Accordingly, nothing in Halling suggests applying eukaryotic microorganisms or blue algae to a first major surface of a sheet-shaped perforated support, or supplying an aqueous solution to a second major surface of the sheet-shaped perforated support, as required by Applicants' claims.

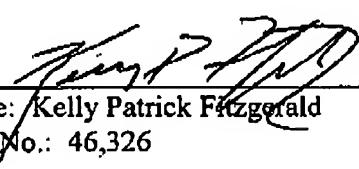
In view of these fundamental distinctions, Applicants respectfully request the Examiner's reconsideration. In particular, Applicants respectfully request allowance of new claims 18-30. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date:

August 20, 2007

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